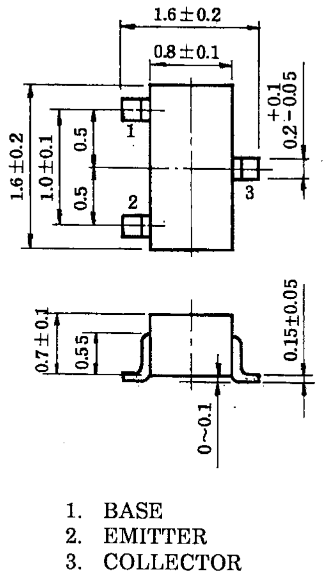
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

RN2101,RN2102,RN2103
RN2104,RN2105,RN2106

Switching, Inverter Circuit, Interface Circuit And Driver Circuit Applications

Unit: mm

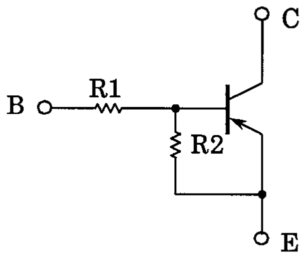
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1101~RN1106



JEDEC	—
EIAJ	—
TOSHIBA	2-2H1A

Weight: 2.4mg

Equivalent Circuit and Bias Resister Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2101	4.7	4.7
RN2102	10	10
RN2103	22	22
RN2104	47	47
RN2105	2.2	47
RN2106	4.7	47

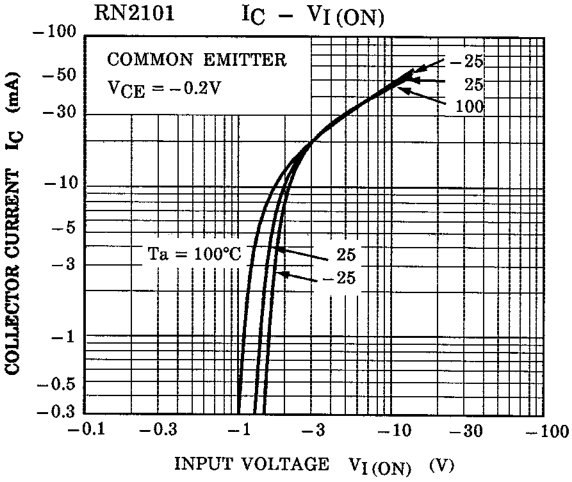
Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN2101~2106	V_{CBO}	−50	V
Collector-emitter voltage		V_{CEO}	−50	V
Emitter-base voltage	RN2101~2104	V_{EBO}	−10	V
	RN2105, 2106		−5	
Collector current	RN2101~2106	I_C	−100	mA
Collector power dissipation		P_C	100	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55~150	°C

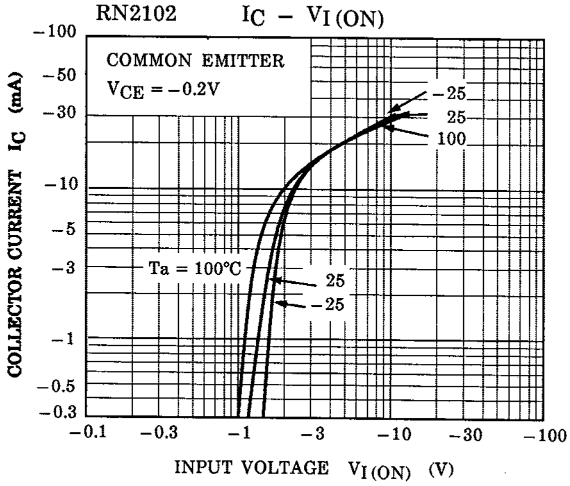
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2101~2106	I_{CBO}	—	V_{CB} = −50V, I_E = 0	—	—	−100	nA
		I_{CEO}		V_{CE} = −50V, I_B = 0	—	—	−500	
Emitter cut-off current	RN2101	I_{EBO}	—	V_{EB} = −10V, I_C = 0	−0.82	—	−1.52	mA
	RN2102				−0.38	—	−0.71	
	RN2103				−0.17	—	−0.33	
	RN2104				−0.082	—	−0.15	
	RN2105			V_{EB} = −5V, I_C = 0	−0.078	—	−0.145	
	RN2106				−0.074	—	−0.138	
DC current gain	RN2101	h_{FE}	—	V_{CE} = −5V, I_C = −10mA	30	—	—	
	RN2102				50	—	—	
	RN2103				70	—	—	
	RN2104				80	—	—	
	RN2105				80	—	—	
	RN2106				80	—	—	
Collector-emitter saturation voltage	RN2101~2106	$V_{CE\ (sat)}$	—	I_C = −5mA, I_B = −0.25mA	—	−0.1	−0.3	V
Input voltage (ON)	RN2101	$V_{I\ (ON)}$	—	V_{CE} = −0.2V, I_C = −5mA	−1.1	—	−2.0	V
	RN2102				−1.2	—	−2.4	
	RN2103				−1.3	—	−3.0	
	RN2104				−1.5	—	−5.0	
	RN2105				−0.6	—	−1.1	
	RN2106				−0.7	—	−1.3	
Input voltage (OFF)	RN2101~2104	$V_{I\ (OFF)}$	—	V_{CE} = −5V, I_C = −0.1mA	−1.0	—	−1.5	V
	RN2105, 2106				−0.5	—	−0.8	
Transition frequency	RN2101~2106	f_T	—	V_{CE} = −10V, I_C = −5mA	—	200	—	MHz
Collector Output capacitance	RN2101~2106	C_{ob}	—	V_{CB} = −10V, I_E = 0, f = 1MHz	—	3	6	pF
Input resistor	RN2101	R1	—		3.29	4.7	6.11	kΩ
	RN2102				7	10	13	
	RN2103				15.4	22	28.6	
	RN2104				32.9	47	61.1	
	RN2105				1.54	2.2	2.86	
	RN2106				3.29	4.7	6.11	
Resistor ratio	RN2101~2104	R1/R2	—		0.9	1.0	1.1	
	RN2105				0.0421	0.0468	0.0515	
	RN2106				0.09	0.1	0.11	

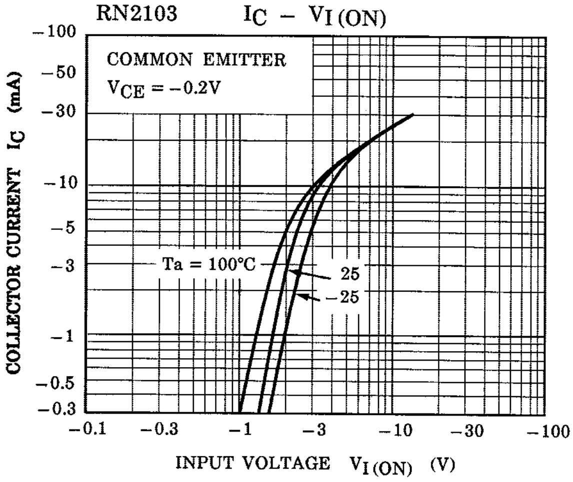
RN2101 $I_C - V_{I(ON)}$



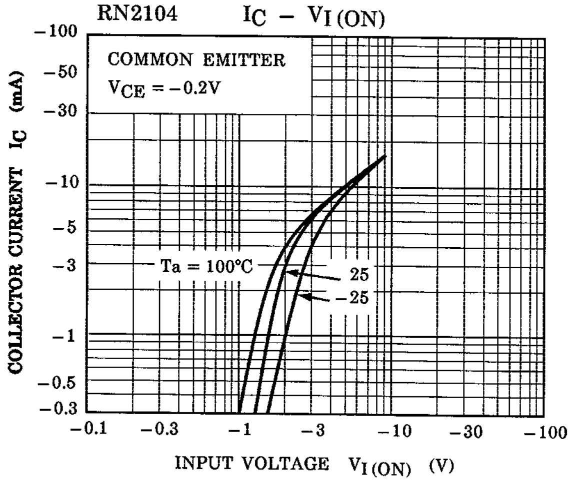
RN2102 $I_C - V_{I(ON)}$



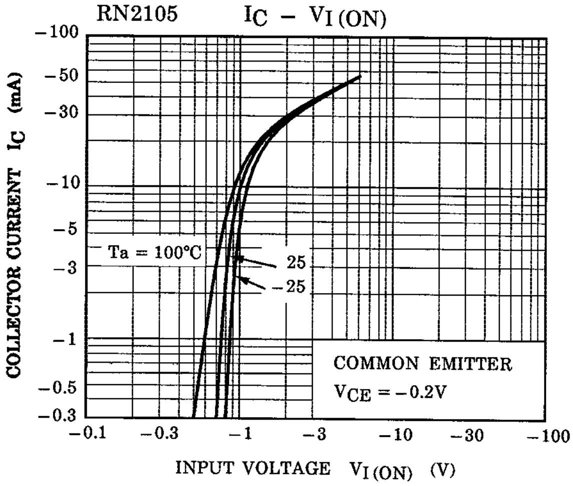
RN2103 $I_C - V_{I(ON)}$



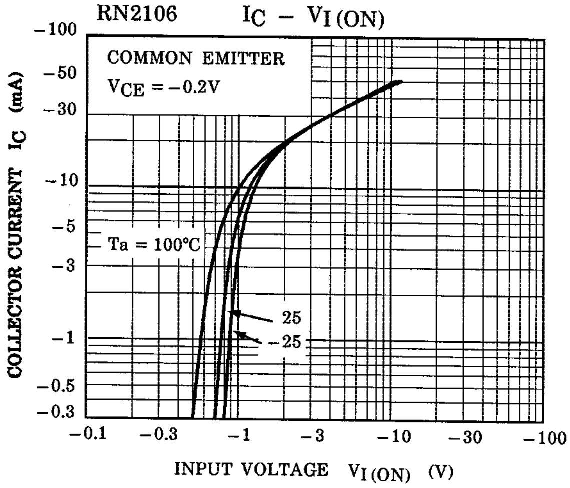
RN2104 $I_C - V_{I(ON)}$

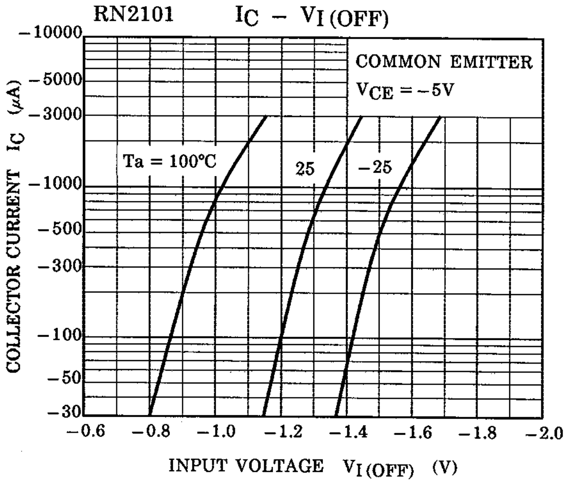


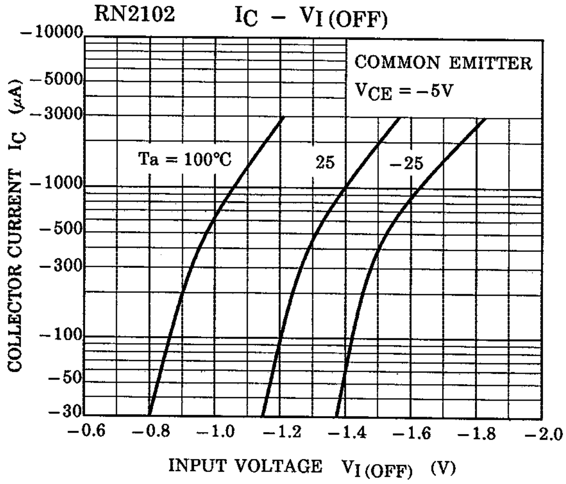
RN2105 $I_C - V_{I(ON)}$

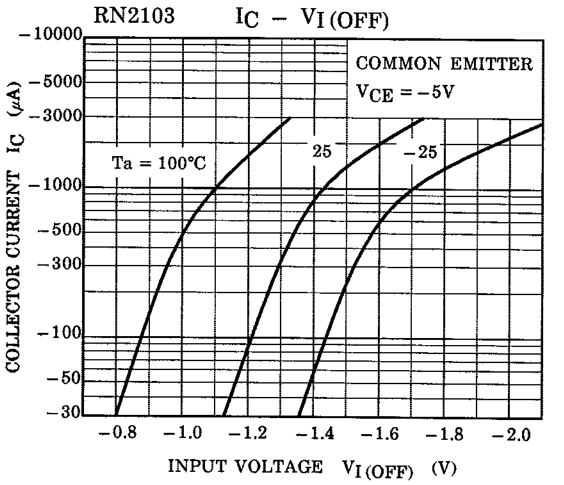


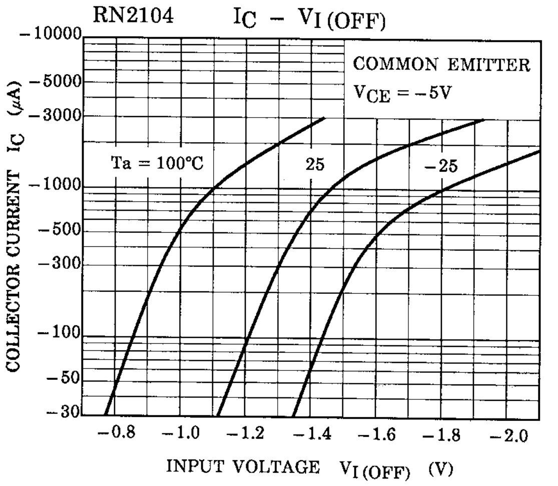
RN2106 $I_C - V_{I(ON)}$

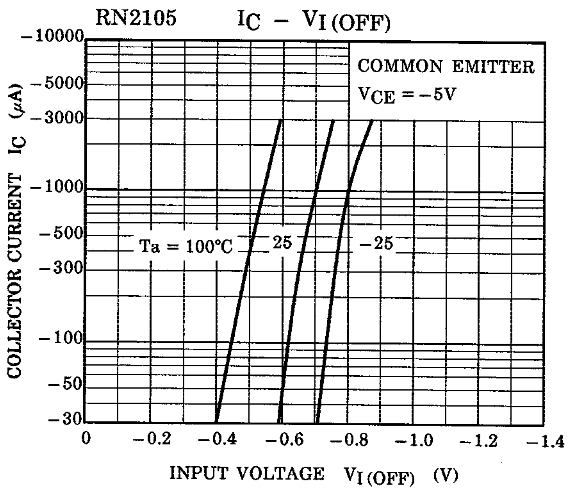


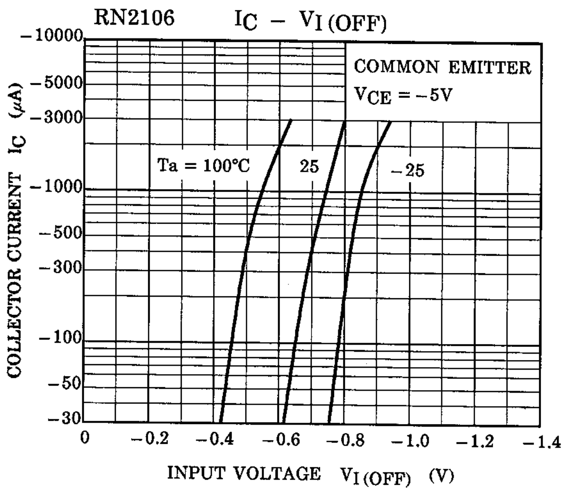

RN2101
I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = –5V
Ta = 100°C
25
–25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

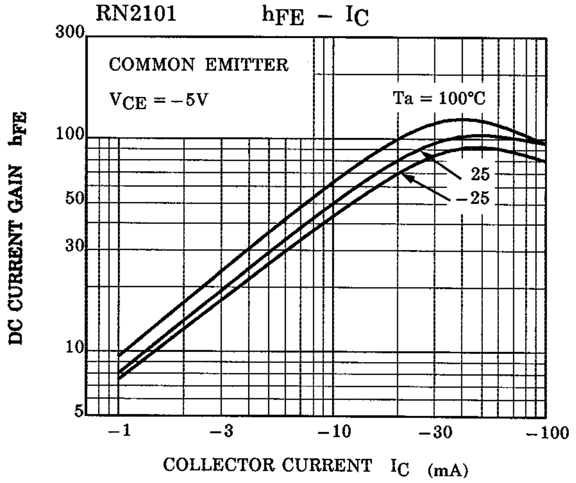

RN2102
I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = –5V
Ta = 100°C
25
–25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

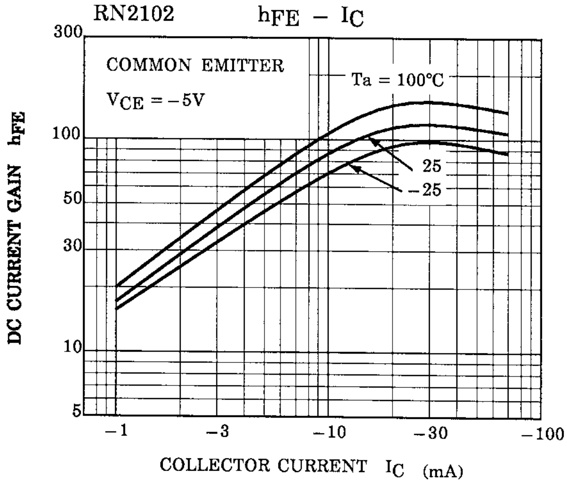

RN2103
I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = –5V
Ta = 100°C
25
–25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

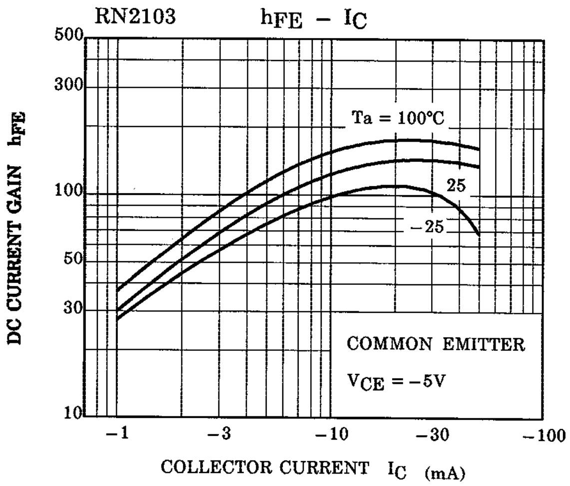

RN2104
I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = –5V
Ta = 100°C
25
–25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

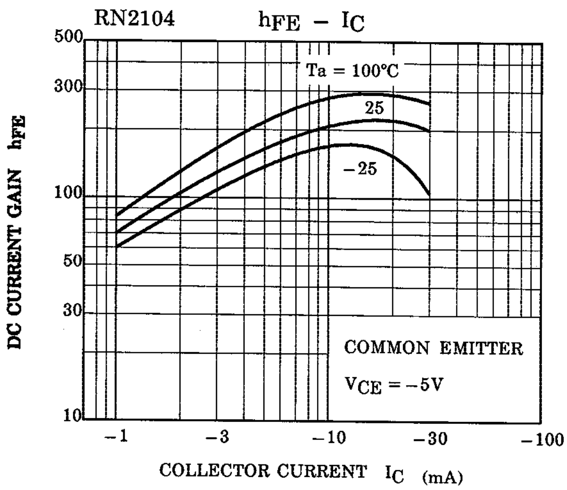

RN2105
I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = –5V
Ta = 100°C
25
–25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

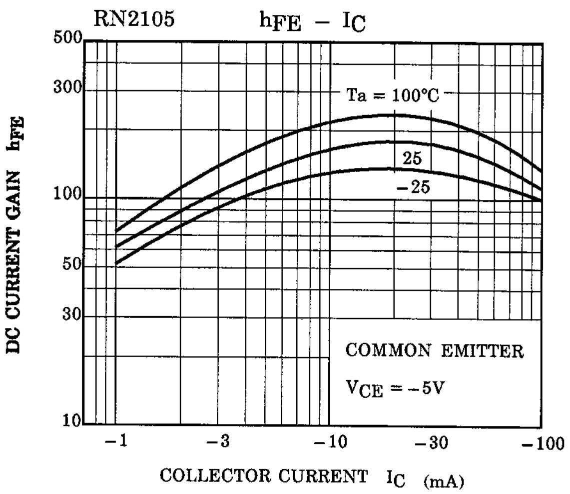

RN2106
I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = –5V
Ta = 100°C
25
–25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

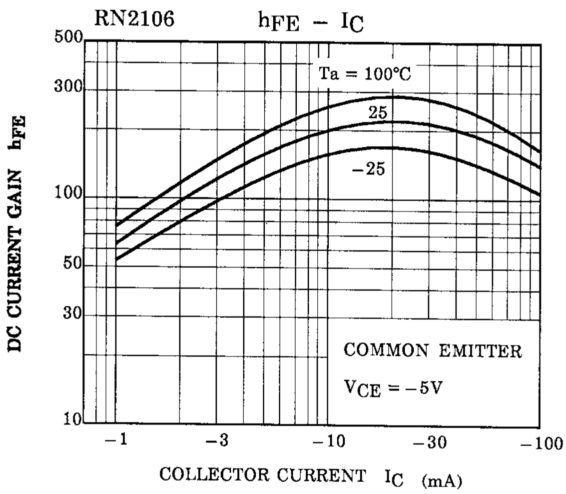

RN2101
hFE – IC
COMMON EMITTER
VCE = –5V
Ta = 100°C
25
–25
DC CURRENT GAIN hFE
300
100
50
30
10
5
–1
–3
–10
–30
–100
COLLECTOR CURRENT IC (mA)

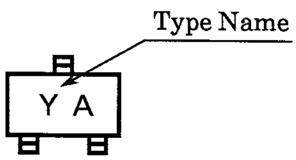
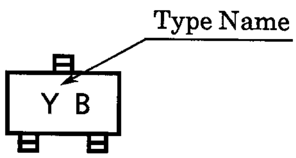
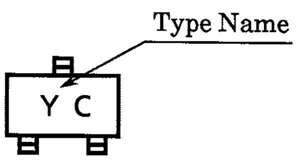
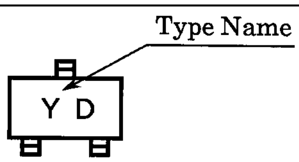
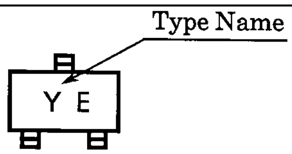
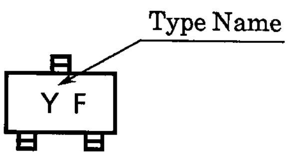

RN2102
hFE – IC
COMMON EMITTER
VCE = –5V
Ta = 100°C
25
–25
DC CURRENT GAIN hFE
300
100
50
30
10
5
–1
–3
–10
–30
–100
COLLECTOR CURRENT IC (mA)


RN2103
hFE – IC
Ta = 100°C
25
–25
COMMON EMITTER
VCE = –5V
DC CURRENT GAIN hFE
500
300
100
50
30
10
–1
–3
–10
–30
–100
COLLECTOR CURRENT IC (mA)


RN2104
hFE – IC
Ta = 100°C
25
–25
COMMON EMITTER
VCE = –5V
DC CURRENT GAIN hFE
500
300
100
50
30
10
–1
–3
–10
–30
–100
COLLECTOR CURRENT IC (mA)


RN2105
hFE – IC
Ta = 100°C
25
–25
COMMON EMITTER
VCE = –5V
DC CURRENT GAIN hFE
500
300
100
50
30
10
–1
–3
–10
–30
–100
COLLECTOR CURRENT IC (mA)


RN2106
hFE – IC
Ta = 100°C
25
–25
COMMON EMITTER
VCE = –5V
DC CURRENT GAIN hFE
500
300
100
50
30
10
–1
–3
–10
–30
–100
COLLECTOR CURRENT IC (mA)

Type Name	Marking
RN2001	
RN2102	
RN2103	
RN2104	
RN2105	
RN2106	

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000707EAA

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